CLAIMS

1. A process for the generation of cells producing pancreatic hormone, comprising:

- a cultivation and differentiation of stem cells obtained from differentiated exocrine glandular tissue of an organism.

2. The process according to Claim 1, in which stem cells isolated primarily from the organism are cultivated and differentiated.

3. The process according to Claim 1, in which an aggregation of the stem cells to organoid bodies is provided.

4. The process according to Claim 3, in which the differentiation of the stem cells is carried out in the organoid bodies.

5. The process according to Claim 3, in which stem cells isolated secondarily from the organoid bodies are cultivated and differentiated.

6. The process according to at least one of the preceding claims, in which a stimulation of the generation of cells producing pancreatic hormone that comprises a stimulated propagation of the cells producing pancreatic hormone and/or a stimulated differentiation of the stem cells is provided.

7. The process according to Claim 6, in which the stimulation comprises at least one of the following stimulation treatments:

- treatment with supernatants of a primary culture of the endocrine pancreas,
- treatment with supernatants of cell lines of the endocrine pancreas,
- co-culture with differentiated cells of the endocrine pancreas,
- co-culture with cell lines of the endocrine pancreas, or
- treatment with immobilized molecular growth factors,
- activation of at least one gene that is involved in the differentiation of stem cells into the cells producing pancreatic hormone, and
- treatment with molecular growth factors dissolved in a liquid.

8. The process according to Claim 7, in which the treatment with immobilized molecular growth factors comprises a cellular imprinting with molecular differentiation factors immobilized on a carrier.

9. The process according to Claim 8, in which a synthetic substrate, a cell membrane or a three-dimensional matrix substrate is used as carrier.

10. The process according to at least one of the preceding claims, in which an identification and selection of the cells producing pancreatic hormone is provided

11. The process according to Claim 10, in which the selection of the cells producing pancreatic hormone comprises a cell sorting process

12. The process according to Claim 10 or 11, in which non-identified and selected cells are subjected to a further cultivation and differentiation.

13. The process according to at least one of the preceding claims, in which stem cells that were obtained from secretory glands or glands of the gastrointestinal tract of the organism are used.

14. The process according to Claim 13, in which stem cells that were obtained from the pancreas or the salivary gland of the organism are used.

15. The process according to at least one of the preceding claims, in which stem cells from glandular tissue that is acinar tissue are used.

16. The process according to at least one of the preceding claims, in which stem cells from a vertebrate, preferably a mammal are used.

17. The process according to Claim 16, in which stem cells from a primate, especially a human being are used.

18. The process according to at least one of the preceding claims, in which the cells producing pancreatic hormone are used for pharmaceutical applications.

19. The process according to Claim 18, in which the cells producing pancreatic hormone are used for the treatment of pancreatic diseases, a metabolic syndrome or metabolic diseases.

20. The process according to Claim 19, in which the cells producing pancreatic hormone are used for the treatment of diabetes, hyperglycemia or impaired glucose tolerance.

21. The process according to at least one of the preceding claims, in which the cells producing pancreatic hormone produce insulin.

22. An isolated cell producing pancreatic hormone, the cell having been generated from a stem cell that was isolated from differentiated exocrine glandular tissue of an organism.

23. The isolated cell producing pancreatic hormone according to Claim 22, which is a human cell.

24. A cellular composition containing a plurality of cells producing pancreatic hormone according to Claim 22 or 23.

25. The cellular composition according to Claim 24, in which the cells producing pancreatic hormone are generated with a process according to at least one of Claims 1 to 21.

26. The cellular composition according to Claim 24 or 25, which additionally contains other cell types.

27. The cellular composition according to Claim 26, in which the other cell types comprise stem cells and/or neighboring cells of islets of Langerhans in pancreatic tissue.

28. The cellular composition according to one of Claims 24 to 27, which contains a casing or matrix material.

29. The use of a cell according to Claim 22 or 23 or of a cellular composition according to Claim 24 as a pharmaceutical composition.

30. The use of a cell according to Claim 22 or 23 or of a cellular composition according to Claim 24 as an autologous pharmaceutical composition.

31. The use of a cell according to Claim 22 or 23 or of a cellular composition according to Claim 24 for transplantation or in a medical device.

32. Artificial islets of Langerhans containing a cell according to Claim 22 or 23 or a composition according to Claim 24.

33. A pharmaceutical composition containing:

- at least one cell according to Claim 22 or 23 or at least one cellular composition according to Claim 24, and
- a pharmaceutical carrier substance.